

WHAT IS CLAIMED IS

1. A lithium battery comprising an aluminum foil packet, a gel-type electrolyte and a jelly-roll, the gel-type electrolyte having a plurality of micelle units, and the micelle unit comprising:

5 a micro drop of electrolyte; and

a plurality of first oligomers with interfacial activity, the first oligomer having at least one nonpolar group and at least one polar group for adhering to the surface of the micro drop.

10 2. The lithium battery of Claim 1, wherein the micelle unit further comprises a plurality of second oligomers interconnected with each other and surrounding the first oligomer with interfacial activity.

3. A method for making a lithium battery, comprising the steps of:

disposing a jelly-roll in an aluminum foil packet;

15 injecting a mixture of a first oligomer, an electrolyte and an initiating agent into the aluminum foil packet;

molding the aluminum foil packet by sealing and compressing;

baking the mixture to form a gel-type electrolyte; and

performing an activation process.

20 4. The method for making a lithium battery of Claim 3, wherein the first oligomer is an acrylate oligomer and is in an amount of from 5 to 50% by weight, based on the weight of the mixture.

25 5. The method for making a lithium battery of Claim 4, wherein the first oligomer comprises a single-function oligomer and a multi-function oligomer, the ratio of the single-function oligomer to the multi-function oligomer is between 5/95 and 95/5, and the first oligomer

has a polar group and a nonpolar group.

6. The method for making a lithium battery of Claim 5, wherein the polar group comprises a functional group selected from the group consisting of C=O, C=N and C-O.

5 7. The method for making a lithium battery of Claim 5, wherein the nonpolar group of the first oligomer comprises t-Bu-, R₃Si- and R-, and the R- is selected from the group consisting of hydrogen, the alkyl, the vinyl, the silane and the siloxy.

10 8. The method for making a lithium battery of Claim 4, wherein the electrolyte is EC/ DMC/EMC (1/1/1) 1M LiPF₆, and is in an amount of from 50 to 95% by weight, based on the weight of the mixture.

9. The method for making a lithium battery of Claim 4, wherein the initiating agent is a free radical initiating agent and is in an amount of from 0.1 to 5% by weight, based on the weight of the first oligomer.

15 10. The method for making a lithium battery of Claim 4, wherein the temperature for baking the mixture is between 40 and 100°C for 1 to 12 hours.